

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Akinori TAIRA et al.

Application No.: 10/743,738

Confirmation No.: 9089

Filed: December 24, 2003

Art Unit: 2618

For: DATA TRANSMISSION SYSTEM, DATA  
TRANSMITTER AND DATA RECEIVER  
USED IN THE DATA TRANSMISSION  
SYSTEM

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Examiner: L. Nguyen

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the final Office Action mailed on December 12, 2006, Appellant respectfully requests a Pre-Appeal Brief Conference. This request is being filed concurrently with a Notice of Appeal.

The review is being requested for the reasons set forth on the attached five (5) Sheets.

## **ARGUMENTS**

Applicants respectfully submit that the Examiner has made the following clear errors:

- (1) The Examiner is improperly applying the prior art in rejecting claims 33-38 under 35 U.S.C. §103(a), as being unpatentable over Qureshi et al. (U.S. Pat No. 4,004,226) in view of Bladwin et al. (U.S. Pat No. 5,204,976).

### **Background of the Invention**

In the field of mobile wireless communication such as the present invention, in a case where a repetition pattern is transmitted, a frequency selective fading caused by a multipath phenomenon affects the received power of a receiver. This generates or tends to generate large variations in the received power ("variation in the received power" is hereinafter referred to as "received power variation").

On the other hand, a random pattern is subject less to the frequency selective fading. Therefore, the random pattern results in smaller received power variations than a repetition pattern. Since the transmission data generally has a random pattern, the received power variation becomes small, as stated above.

A transmission object data includes a preamble containing information such as control information for transmission/reception, as well as the transmission data. When the transmission object data is transmitted, the preamble is transmitted before transmitting the transmission data. Conventionally, in wireless systems repetition data has been used for the preamble. Therefore, in the conventional systems, the received power variation occurs in the preamble as stated above. However, in the embodiments of the conventional invention in which a repetition pattern is used for the preamble, large received power variations occur in the preamble. This results in a large difference in the received power between the preamble and the transmission data because the transmission data has a random pattern in itself.

The above large difference in the received power disturbs the appropriate receiving operation. Particularly, the difference is more likely to occur under the wireless mobile communication environment including the complex multipath, such as the urban space where there are many buildings. As described in the specification on page 8 lines 10-17, i.e., a problem occurs in case where the receiver activates AGC for the preamble, "if the AGC output signal is settled down at the preamble portion ((1) in FIGS. 20A and 20B), there is produced an improper

output level at the in the data portion. The AGC output signal must be settled down again ((3) in FIGS. 20A and 20B) till the AGC output signal is approximate to the reference value. Thence, the demodulator continues its improper demodulation of the data ((2) in FIGS. 20A and 205) till the AGC output signal is settled down again."

Based on the above newly discovered problem, applicants utilize the random pattern with the signal of the preamble, which reduces the received power variation at the preamble and also reduces the difference in the received power variation between the preamble and the transmission data. Accordingly, even though the signal subjected to the frequency selective fading is received, the AGC output is settled down into a proper signal level in the preamble and it is possible to adjust the signal level of the subsequent data portion (transmission data) to the reference value or its near value. See page 18, lines 7-12 of the specification.

#### **Examiner Improperly Relying Upon Qureshi's Teachings**

As recited in claims 33-38, a preamble of a transmission data signal is used to provide power intensity information of the transmission signal. To provide an accurate power intensity with respect to the propagated signal itself, a random pattern is used for the preamble. The preamble is part of wireless system, where data is transmitted wirelessly from a transmitter to a receiver.

Qureshi, contrary to the embodiments of the present invention, provides a wired system that trains an equalizer. The Examiner confirms Qureshi's teachings as pertaining to a wired system by stating on page 4 of the Office Action dated December 12, 2006, that Qureshi performs communication using "line modem communication." The wired system of Qureshi does not assert a random preamble signal used in determining power intensity of a transmitted wireless signal.

In wireless systems, such as Applicants' claimed invention, different issues arise from those of wired systems, which require different means to address. In wireless systems propagation properties of the signal wave are affected. This includes fading, such as Rayleigh fading and also frequency selective fading. Each of these cause a distortion in the waveform. Applicants have explained above in the "Background" section the unique issues and means for addressing those issues of the presently claimed wireless system. **Applicants submit that one of ordinary skill would not look to a wired system, with different problems and solutions from wireless systems, to address by use of a random preamble, for example, frequency selective fading of the claimed wireless system.**

There is no teaching, suggestion or motivation in Qureshi for using its techniques to address the claimed wireless system features.

In Qureshi a preamble is initially sent to the equalizer acting as a catalyst to jump start the training. The receiver detects the preamble which starts an initialization process prior to the training sequence. See col. 4, lines 10-17. Qureshi's invention relates to training of an equalizer in a wired communication system. Although Qureshi teaches that "each burst includes information preceded by a preamble..." in lines 2-3 of col. 3, this merely teaches a preamble in the general sense. In such wired systems, amplitude and gain losses occur due to the resistance and properties associated with the wires and devices used to transmit the signal. This is usually an amplitude loss, which is normal and obvious for wired systems.

The preamble carries strong band-edge components that are used to make an initial determination of the best sampling epoch. The carrier recovery circuit also adjusts its frequency and phase. With this initialization, the remote-transmitter then changes to a pseudo-random pattern suitable for training the equalizer. See col. 4, lines 17-28.

Further, as stated at lines 51-59, a principal feature of the invention of Qureshi is the elimination of the first segment from the conventional training preamble. In this embodiment, the first segment from the conventional training preamble is eliminated and training begins with a pseudo-random training sequence without the initial initialization. This pseudo-random training sequence is directed to the equalizer. Column 4, lines 58-59 of Qureshi states:

As before, the AGC can be made to settle very quickly.

The settling of the AGC is referenced earlier at column 4, lines 14-18 which state:

the receiver carrier detect circuit detects the appearance of energy on the line and causes the receiver to start its initialization or training procedure. The AGC is put into a fast, high-gain mode and quickly establishes the proper signal level.

Nowhere do these statements assert that a random preamble is received and used in the determination of the AGC. At best these disclosures in Qureshi leave one to consider exactly how Qureshi settles the AGC upon initialization of the training program of the equalizer. **Qureshi merely states that the AGC is settled upon initialization of the training program, not by using a random**

**pattern of the preamble. Moreover Qureshi refers to a pseudo-random training sequence. The detailed description of the training sequence at column 5 and 6 never refers to it being used as part of settling the AGC, but only as an initialization means for the equalizer.** Thus, the teachings in Qureshi do not teach the claimed features.

Further, the Examiner states that:

Qureshi only differs from the claimed invention in that the communication with the AGC is used in line modem communication. However, according to Baldwin, communication with the AGC can also be used in mobile wireless communication system. (Page 4, Office Action)

Where within Qureshi does it suggest using it's teachings in a wireless format? Where within Baldwin does it teach or suggest using wired system techniques for wireless system issues? The answer is nowhere in either of these references. Further, one of ordinary skill would not be motivated to solve an AGC problem in a wireless system by looking to a wired system for the reasons discussed above. Thus, one of ordinary skill in the art would not impose the teachings of Qureshi in a wireless system, as taught in Baldwin, to achieve the claimed features of Applicants invention.

Accordingly, applicants respectfully submit that the Examiner has failed establish Qureshi teaches each of the claimed elements it is alleged to teach. Further, the Examiner has failed to establish proper motivation to combine teachings of the Qureshi and Baldwin. Thus, an obviousness rejection cannot be maintained.

### **Conclusion**

In view of the foregoing, Applicant respectfully submits that the application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

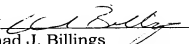
Should the Examiner believe that anything further would be desirable to advance prosecution of this application, the Examiner is invited to contact Chad Billings (Reg. No. 48,917) at (703) 205-8001.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account

No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: May 11, 2007

Respectfully submitted,

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